



Level of Awareness and Knowledge about Glaucoma among Adult Patients

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ABSTRACT

Objective: This study was conducted to determine the level of awareness and knowledge about glaucoma among adult patients in a tertiary eye care hospital & medical college. This study was conducted by Narayana Medical College and Hospital (NMC), Kanpur Nagar, U.P. Duration: January 3, 2019 to September 30, 2019.

Material and Method: This is a hospital-based cross-sectional study. A total of 504 patients, aged 40 years and above, attending the Outpatient Department of Ophthalmology & Optometry, Narayana Medical College and Hospital (NMC), Kanpur Nagar, U.P. were treated. Questionnaires were administered after written informed consent to assess their awareness and knowledge level about glaucoma, aged 40 years and above. Subjects who had "heard of glaucoma" before being recruited to the study were defined as "aware", and subjects with little understanding of the eye disease were defined as "informed".

Results: There were a total of 504 participants, 269 males and 235 females. The model age group was 50 and 60 years. Amongst the participants, only 25 (4.8%) were aware of glaucoma and 16 (3.1%) had some knowledge. Determinants of glaucoma awareness were higher levels of education, diabetes, or glaucoma and family history of glaucoma.

Conclusion: In this study, we conclude the level of Awareness and knowledge Subjects were deficient in glaucoma. The findings of the study emphasize the need for Health awareness to effectively prevent blindness due to glaucoma.

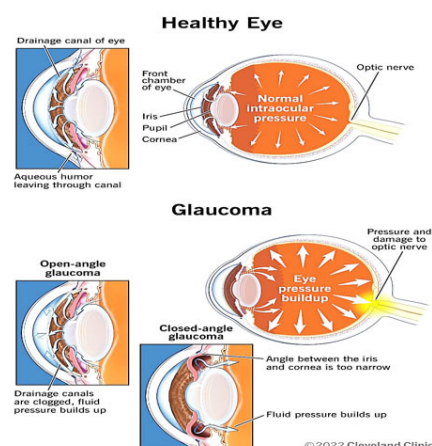
Key Words: Awareness, Glaucoma, Hospital-based study, Knowledge, North India, Blindness

INTRODUCTION

Glaucoma is the second leading cause of blindness after cataracts and is the leading cause of blindness in the world.¹ The diagnosis is usually made in the advanced stage of the disease and the Section has done a lot of damage to the eye. Raising public awareness through regular public education on eye examinations is one of the effective measures for early detection and control. The World Health Organization (WHO) estimates the annual incidence of primary open-angle glaucoma (POAG) to be 2.4 million. Blindness prevalence for all types of glaucoma is approximately 5.2 million people, of which 3 million are cases caused by POAG. POAG represents a significant public health problem. POAG is the leading cause of blindness and the most common cause of irreversible blindness in black people.²

There are various factors that influence the awareness level of education, family history and publicity by media and information distribution by government agencies and non-governmental organizations (NGOs). The reason for this study is that previous studies conducted in India mostly focused

on Level 1 villages or rural areas.^{5, 6-7} This study was carried out by Narayana Medical College and Hospital (NMC), Kanpur Nagar, U.P., India, a tertiary hospital located in the city of Kanpur. There are many secondary cities in India, including urban and rural areas. Therefore, this study aims to understand glaucoma perception and knowledge in tertiary eye hospitals in the second-tier city.



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METHOD & MATERIAL

The sample size was calculated with an assumed knowledge level of 13.3%, a confidence level of 95%, and alpha error of 5% and a precision level of 10%.⁵ 504 participants were selected through simple random sampling. The study was conducted from January 3, 2019 to September 30, 2019 and focused on obtaining information on glaucoma knowledge. Patients under 40 years of age and patients' attenders were not included in the study. The patient demographics, socio-economic status, Knowledge and Awareness of Glaucoma were measured by asking participants if they had ever experienced glaucoma before.

Demographic data and literacy were obtained for all subjects. We developed a short, structured, open-ended questionnaire to record information about subjects' perceptions and knowledge about glaucoma. Informed consent was requested from patients before filling out the questionnaire. For participants who were unable to read after sufficient explanation, the questionnaire was written in the local language. Details on the knowledge about glaucoma were obtained only for subjects who were aware of glaucoma.

STATISTICAL METHODS

The data obtained from the research were entered into the Social Sciences Statistical System (SPSS) version 16 program. Pearson product-moment correlation coefficients were used to find significant relationships between glaucoma knowledge and other education variables. A probability (P) value less than 0.05 was considered significant and 95% confidence interval.

RESULTS

The questionnaire was administered to 504 subjects and the responses were analysed. (Response rate 100%). Among the subjects, 269 (53.3%) were males and 235 (46.7%) were females. The mean age of the subjects was 54 ± 11 years. The minimum age was 40 years and the maximum age was 90 years. The proportion of subjects was similar in each age group from 40 to 70 years. The rural: urban ratio was 48.7:51.3. Among the subjects, 109 (21.7%) were illiterate and 129 (25.6%) were college educated. 125 (24.9%) subjects were diabetic, 09 (1.7%) had glaucoma, and 3 (0.7%) subjects had a family history of glaucoma.

Table 1 shows the frequency distribution of glaucoma awareness and education among subjects. Only 24 of 504 subjects (4.8%) had heard of glaucoma (**awareness** = 4.8%). Among the 16 (3.1%) educated subjects, 10 were poor, 3 were fair, and the remaining 3 were well-educated. Only 18 subjects knew about glaucoma treatment.

Table 1: Frequency distribution of Awareness of Glaucoma knowledge between subjects

Variables Total	n=504
Awareness	Yes (%)
Have you ever heard of the eye disease glaucoma	25 (4.8)
I don't know about glaucoma Knowledge	479 (95.1)
Risk factors for glaucoma factor	
Obesity	2 (0.43)
Elevated IOP	10 (1.99)
Steroids	2 (0.43)
Chronic smoking + alcohol use	4 (0.85)
Family history of glaucoma	08 (1.56)
Diabetes	11 (2.13)
Two factors	1 (0.28)
IOP and steroids	
IOP and family history	5 (0.99)
Steroids and family history	2 (0.43)
Three factors	1 (0.28)
IOP, steroids and family history	
Risk factors not known	
A meaningful description of glaucoma	11 (2.13)
Increased IOP, eye pressure	10 (1.99)
Loss of side vision	6 (1.28)

Table 2 shows the determinants of awareness of glaucoma. There is no relationship between awareness and sex, age group, place of residence and religion. Awareness was significantly associated with problems and educational status, diabetes, glaucoma patients, and family history of glaucoma.

Glaucoma person in 4 (0.57%) subjects. 7 (0.99%) subjects thought that visual loss due to glaucoma was permanent, 4 (0.57%) thought it was reversible, and the remaining 23 (3.27%) subjects did not know whether visual loss due to glaucoma was permanent or reversible.

Table 2: Determinants of Awareness of Glaucoma

Variable	Rate in %	Aware n=25	Not aware n=479	Odds ratio and 95% CI	P by (Chi-square /Fisher exact test)
Gender					
Male	5.87	15	252	1	0.17 NS
Female	3.65	10	227	0.61 (0.30-1.25)	
Age Group					
40-49	3.74	6	129	1	0.47 NS
50-59	6.09	8	132	1.67(0.64-4.33)	
60-69	6.03	8	133	1.65 (0.64-4.29)	
70-79	1.98	2	71	0.52 (0.10-2.55)	
>80	5.0	1	14	1.35(0.16-11.60)	
Diabetic Status					
Non-diabetic	3.8	15	363	1	0.02 Significant
Diabetic	8	10	116	2.21 (1.09-4.48)	
Glaucoma status					
Non-glaucoma patient					<0.00 Significant
Glaucoma patient	3.6	18	477	1	
	75	7	2	80.04 (20.41-313.83)	
Family history of glaucoma					
No					<0.00 Significant
yes	4.15	20	479	1	
	100	5	0	infinity	

Table 3 shows the comparison based on gender and education level. There was no significant difference in awareness by gender. The sources of information for glaucoma awareness were doctors in 11 (2.27%) subjects and mass media in 10 (1.99%) subjects.

Table 3: Sex and Awareness of glaucoma

	No (n=479)	Yes (n=25)	All (n=504)	P
Gender	Number (%)	Number (%)	Number (%)	χ^2 test
MALE	255 (53.3)	13 (51.7)	262 (52.1)	0.88
FEMALE	223 (46.7)	12 (48.3)	241 (47.9)	0.88

Table 4 shows there were 504 participants, 269 men and 235 women. The age group is 50 and 60 years. Only 25 (4.8%) of the participants were aware of glaucoma, while 16 (3.1%) were aware of monotherapy and dual therapy. Determinants of glaucoma awareness are education level, diabetes or glaucoma, and family history of glaucoma.¹⁵⁻²¹

Table 4: Shows the subject's knowledge level on treatment options for glaucoma

Variables: Therapies for treating glaucoma	Total n = 504 Yes (%)
Is glaucoma treatable?	13 (2.56)
Aware of only a single therapy of only a single therapy	
Eye drops	08 (1.56)
Surgery	6 (1.28)
Laser treatment	4 (0.85)
Aware of two therapies	
Eye drops and surgery	3 (0.57)
Eye drops and laser	3 (0.57)
Surgery and laser	1 (0.14)
Aware of more than two therapies	
Eye drops, surgery and laser	1 (0.28)
Treatment not known	08 (1.56)
Can't say/No Answer	4 (0.71)

The education level of the participants ranged from no formal education to tertiary level. The majority, 155 (31%) had completed middle school, followed by those with tertiary education, 120 (24%). There were statistically significant differences in awareness of glaucoma between these two main groups. The tertiary group were all aware of glaucoma while most of the participants who were unaware of glaucoma, 272 (57%) were from the middle school group. Of those without formal education, 4 (14%) had heard of glaucoma while only 48(10%) had never heard of glaucoma, although this difference was not statistically significant.

Table 5 shows, the education levels of the participants ranged from no education to university. The majority (31%) had a bachelor's degree, followed by a college degree (24%). There are significant differences between the two main groups in terms of glaucoma awareness. All of the third group were aware of glaucoma, most of the participants were not aware of glaucoma and (57%) were studying in secondary school. Among those who did not receive training, (14%) had heard of glaucoma, only (10%) had never heard of glaucoma, but this difference was not significant

Table 5: Education and Awareness of glaucoma

		Aware n=25	All (n=504)	P
Education	Number (%)	Number (%)	Number (%)	χ^2 test
None	48 (10.0)	4 (13.8)	65 (12.8)	0.59
Primary	95 (20.0)	3 (10.3)	65 (12.8)	0.17
Middle	272 (56.7)	5 (21.8)	155 (30.8)	<0.001
Secondary	64 (13.3)	5 (21.8)	99 (19.7)	0.31
Tertiary	0 (0)	8 (32.2)	120 (23.9)	<0.001

DISCUSSION

Glaucoma is one of the leading causes of irreversible blindness in developing countries. It is one of the major causes of eye disease that requires immediate attention.⁸ As the elderly population continues to grow, the incidence of glaucoma is set to increase. To our knowledge, this is the first tertiary care hospital-based study conducted in a tier-2 city to measure awareness of glaucoma in India. Two such studies have been reported in tertiary hospitals in Ethiopia and Singapore.^{9,10}

In our study, 4.8% (25/504) were aware of glaucoma, which appears to be lower than in urban Lucknow (13.3%), while higher than in rural (0.33%) in North India and urban areas of Kanpur (2.4%).⁵⁻⁷ Therefore direct comparison may not be applicable. Awareness levels were much lower compared to reports from developed nations but higher than developing nations such as Nepal (2.4%) and Ethiopia (2.4%).^{9,11} Knowledge was 3.1%, which was lower than urban Chennai and Hong Kong. studies.^{5,12}

In our study, awareness of gender, age, residence, and religion are not significant; this was consistent with studies conducted elsewhere.⁹ But when we compared awareness with respect to literacy rate, out of 25 people, all but 1 had basic primary education. Awareness has increased exponentially among the educated [Table 2]. It was more significant for people educated above university. This shows that the higher the level of education, the more likely they are aware of glaucoma, which was similarly noted in other studies.^{5,6-7, 9-14} There was no statistical significant sex difference in

the awareness of glaucoma [Table 3]. Of the 25 participants who were aware of glaucoma 13 (52%) were males and 12 (48%) were females ($P = 0.88$). This point again emphasizes the need to attach more importance to women's education in India. In this study, 09 (1.7%) people had glaucoma, but of these, 7 people were aware of glaucoma, 2 people were unaware of their glaucoma status, and all 3 were illiterate. This point emphasizes the literacy factor mentioned above.

Diabetic patients were more aware of glaucoma. This is probably because India has about 50.8 million diabetic patients.¹⁵ These people go to the doctor at some point. There, your doctor may educate you about diabetic eye problems. This is also confirmed by our findings that doctors were the main source of information about glaucoma awareness in 16 patients (2.27%), followed by the media in 11 patients (1.99%) and family history in 3 (0.57%). It differs from other studies in that in previous studies rural media and urban family/friends were the main sources of knowledge.^{6, 7} People with a family history of glaucoma and people with glaucoma had similar perceptions.^{5,10,13} Family history of glaucoma definitely plays an important role in raising awareness. Four did not have glaucoma, but five had a known family history. Even if doctors and family history create good perceptions, it only reaches a limited group of people. Therefore, we believe that by broadcasting TV programs to every corner of the country, the media can play a greater role in raising awareness because it is affordable and reaches the masses.

LIMITATIONS OF OUR STUDY

This is not a population-based study, thus the results do not represent the actual situation in the communities. Patients represented in teaching hospitals may be motivated people and their knowledge and awareness may be higher than the average population. The small sample size was also a major limitation.

Although many eye camps are conducted by the government for comprehensive eye care, public awareness about potentially blinding conditions like glaucoma is low. Effective health education can influence individuals to get screened for eye diseases. This can lead to early detection of glaucoma and prevention of blindness. Educating the public about the consequences of delayed treatment of glaucoma will be an important factor in the promotion of preventive ophthalmological care. It is understood that health education sessions are conducted in a language that the target person understands.

CONCLUSION

Awareness and knowledge of glaucoma is low. An efficient Information, Education and Communication (IEC) strategy

needs to be designed to increase the awareness and knowledge levels of glaucoma and thus reduces blindness due to glaucoma.

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